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Mark F Smith
905 Ohio Pike
Cincinnati, OH 45245

EXAMINER	
FLEISCHER, MARK A	

ART UNIT	PAPER NUMBER
4143	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,790	WILSON, THOMAS W.	
	Examiner	Art Unit	
	MARK A. FLEISCHER	4143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☒ Claim(s) *1,6-11,16-18 and 20-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. This action is in reply to the application filed on 25 October 2003.
2. Claim 1-23 are currently pending and have been examined.

Drawings

3. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:
   - on the following pages (P) and lines (L) ([p:L]): [8:22], [10:5], [12:6,10], [13:1,4,12], [14:7] reference is made to *system software 104*;
5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper content of an abstract of the disclosure. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative. The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

7. Where applicable, the abstract should include the following:

   a) if a machine or apparatus, its organization and operation;
   b) if an article, its method of making;
   c) if a chemical compound, its identity and use;
   d) if a mixture, its ingredients;
   e) if a process, the steps.

8. Extensive mechanical and design details of apparatus should not be given.

9. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The abstract of the instant application contains a number of terms, *e.g., UOA-ID* which are presented as examples of *a unique unit of analysis* are not commonly known and are not identified. The text is confusing and unclear and should be re-written in accordance with these guidelines.

10. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are the following

where the notation ([P:L]) indicates the following pages (P) and lines (L) of the specification, respectively:

[1:12]: The text describes *a method and system … for the optimal allocation of resources over time as experienced…* (emphasis added) does not make sense and is confusing as to what is being 'experienced' and who or what entity is experiencing something.

[1:23]: In the middle of the paragraph, the text *avail themselves to statistical* should read *avail themselves of statistical…* The rest of the paragraph regarding *profiles in defined populations* is vague and confusing as it does not describe what is meant by the term *profiles*.

[3:15]: The text *performance of various strata* does not indicate what type of strata are considered thus rendering this example unnecessarily confusing.

[3:19]: The phrase *makes it eligible for a defined population* is vague and confusing. The text suggests that the 'individual unit' is eligible, but it is very unclear what it is eligible for. Moreover, the grammar and sentence structure make this sentence confusing.

[4:4]: The phrase *where the most optimal opportunity lies* is rather oxymoronic. Something is either optimal or it is not and cannot be, by definition, the most optimal. Applicant uses the term *optimal* in the context of this application incorrectly.

[4:11-23]-[5:1]: This paragraph has numerous spelling mistakes, specifically the word *complaint* should be written as *compliant*. The parenthetical *(this assume …)* should read *(this assumes…)*. The last sentence is laden with structural and grammatical errors, *e.g., empirical support of …* should read *empirical support for…* in addition to other problematic prose later on such as *initiative to –complaint ….*

[5:2-3]: *…usable estimates of resource allocation* should read *usable estimates for resource allocation decisions…*

[5:3]: In the second sentence, *Accordingly, a need exist…* should read *Accordingly, a need exists…*

[5:21]: This single sentence paragraph contains grammatical errors: *from expressed in Cohort time…*should read *from being expressed in Cohort time*.

[10:21-23]: The definition of terms is important. Applicant fails to provide the requisite clarity or grammatically proper definitions. For example, the sentence defining the term *Type* in the sentence beginning with *As used herein…* is an incomplete and confusing sentence.

[11:3-5]: The definition of *CATVAR-F* is oxymoronic because it defines a *variable* that *does not change over some designated CCT period*.

[11:12]: The definition of the term *Population* is circular and therefore vague and confusing.

[12:5-17]: The explanation of "Grouper" and the incorrect grammar in lines 7-8 are confusing.

Appropriate correction is required.

Claim Objections

11. Claims 1, 6-10, 16-18, and 20 are objected to because of the following informalities: the phrase *an Output Expressions…* should read *an Output Expression* or, in the alternative, should read *Output Expressions* without the preceding word *an*.
12. Claim 2 is objected to because of the following informalities: the phrase *Output Expressions from expressed…* is grammatically incorrect. Examiner believes it should read *Output Expressions expressed…*or, in the alternative, *Output Expressions from being expressed*...Appropriate correction is required.
13. Claim 10 is further objected to because of the following informalities: the phrase *…and calculating an O per…* Examiner believes this is a typographical error that should read *and calculating an Output per…*
14. Claims 1, 11, 21 and 22 are objected to because of the following informalities: the claimed invention purports to produce an *optimal resource allocation*. Examiner believes Applicant uses the term *optimal* inappropriately in the instant application in that an optimal resource allocation is, by definition, the best resource allocation from among an ensemble of possible allocation

decisions. For these decisions to be optimal, they must be *provably* so. This in turn requires some mathematical model from which to demonstrate optimality. The application lacks any statistical or mathematical model on which to justify such claims of optimality. Examiner believes the application would be more accurately framed in terms of *improved* allocation decisions, rather than *optimal* allocation decisions. Appropriate correction is required.

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 1, 9, 11 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 11, and 21 recite the limitation *identifying a Start Time* and further refer to this *start time*, but it is unclear whether this *start time* refers to the beginning of the inclusion of a *UOA-ID* into a *type*. Both the disclosure and claims do not sufficiently clarify what this step involves. Applicant attempts to define the term on page 13, line 4 wherein "*…identify a "Start Time" which is the earliest CCT for each specific UOA-ID per Type…*" and again on page 14, line 24 wherein "*As used herein "Cohort Time" means that the Start Time is based on a defining event, which is the last date/clock time that the individual UOA-ID meets all of the eligibility criteria to be included into the population*." The first definition attempts to define *start time* by reference to the terms *Type* and *CCT* and the *earliest CCT* whereas the second definition actually defines the term *Cohort Time* and bases the *start time* as *the last date/clock time* (emphasis added). Thus, the definition of *start time* appears to be inconsistent and thereby renders it vague and indefinite. For purposes of examination of these claims, Examiner will assume that the start time is the earliest CCT in which a UOA-ID becomes a member of a specified group or population.

17. In addition, the limitations in claims 1 and 21 refer to a *CATVAR* for *category variable*. It is unclear in the specification whether these are true variables, parameters or indices and whether they take on continuous, integer or strictly Boolean values or are used only for parsing the data. The text on page 11 states *A dynamic CATVAR (termed CATVAR-D) is one that can take theoretically on different values per any given time segment. An example of this is filling a prescription in any given time segment, it could be filled or not filled* (emphasis added). Aside from the problematic grammar, the rest of the specification contains examples which provide for only Boolean values. Consequently, there is insufficient antecedent basis for this limitation in these claims.
18. Claim 9 recites in the preamble a *method … wherein an Output Expressions are generated* and then goes on to state in a limitation the phrase *determining an Outcome,* but there are many outcomes and outcome expressions delineated in the claims and specification. Consequently, this claim is indefinite.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 1, 11, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCartney (PG-Pub 2003/0065534 A1), in view of Wong (US 5,976,082 A). **Examiner's Note**: The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response, should consider fully the entire reference as potentially teaching all or part of the claimed

invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Claim 1:

McCartney, as shown, discloses and/or describes the following limitations:

- *A method of optimizing resource allocation* (McCartney [0002]: "…and allows for optimized allocation of health care resources.") *comprising the steps of:*
  - *identifying sets of information wherein each set of information includes*
    - *a UOA-ID* (Applicant on page 10, line 12: *…means the particular individual UOA entity involved in the study* and further provides examples on line 15 as *patients having a common diagnosis or condition…* McCartney [0039] also describes a Patient Group: "…for example all patients who had a simple appendectomy are in a Patient Group."),
    - *a CCT* (Applicant on page 10, line 8 refers to *calendar clock date/time*. McCartney [0003] refers to dynamic periods of time for given situations: "For example a person admitted to a hospital [ ] will generally require operating room **time,** recovery ward **time**…" and further describes in [0004] patients that must be "tracked virtually on a real **time** basis") ,
    - *a CATVAR* (Applicant on page 5, line 11 refers to a *Categorical Variable to enable* stratification of data. McCartney, in at least [0030], refers to the notion of class and cohort: "Another class of Patient Group includes patients of a similar age group with a similar diagnosis; other potential groups also exist, for example all patients with appendectomy and diabetes as a complicating diagnosis--in a **statistical** sense, a Patient Group is a **cohort**." McCartney in at least [0057] further uses the term 'category' as in "…Patient Groups falling, within a category of cases…") *and a*
    - *VAR Value* (Applicant on page 11, line 22 defines *VAR Value* and on page 14 line 9-12 provides examples. McCartney, in at least [0064-5] also refers to

various values associated with resource allocation decisions and modules that determine them: "generating the case cost profile rather than the adjusted values.");

- *grouping each UOA-ID into an appropriate Type* (Applicant defines *Type* on page 10, line 21. McCartney in at least [0026] describes this same limitation: "the grouping systems in different countries generally use the same approach to grouping disease and treatment case types." Emphasis added.);

McCartney does not specifically include the following limitations, but Wong, as shown does.

- *identifying a Start Time* (Applicant defines the *start time* generally as the time at which group membership criteria are satisfied. Wong, in at least [0050] states: "First available date of enrollment (i.e., start of dataset or enrollment date) [ ] Date of first CHF diagnosis (ICD-9 code in any position)…");
- *forming at least one Cohort time segment based on the Start Time* (Wong, in at least the abstract states: "A time window is defined to provide a timeframe from which to judge whether events should be considered in subsequent processing…" where 'time window' is equivalent to a *Cohort time segment.*);
- *placing the UOA-ID into the appropriate time segment* (Wong in at least [0013] states: "…the time window is used to identify an analysis region…" and in [0017] "…using the **time window** and the set of variables, to generate an **analysis** file…" The method of 'using the time window' is thus equivalent to the limitation in that the set of variables is associated with the particular time window. This association corresponds to the relevant *UOA-ID* that is associated with *the appropriate time segment*);
- *calculating an eligibility score for each UOA-ID for each time segment* (Applicant refers to *eligibility score* on page 15, line 24 as corresponding to the timeframe in which a unit of analysis is available for study *both prospectively and retrospectively* and further provides an example where the score is given in terms of months. Wong,

in at least [0161] describes the use of analysis weights associated with time windows: "…analysis weights which reflect proximity to the event to be predicted can be used, for example, within 3 months × 1, 3-6 months × 0.75 …"*);*

McCartney, as shown, discloses and/or describes the following limitations:

- *calculating an Eligible Adjusted Variable Value* (McCartney, in at least [0064-5] states: "…to reconcile [ ] case costing data available [ ], resulting in adjusted cost …" (emphasis added) where adjusted cost corresponds to *Adjusted Variable Value*.*); and*
- *generating an Output Expressions subdivided by each CATVAR* (Applicant on page 7 generally describes this in terms of various economic indicators for each relevant category of analysis where output analysis is subdivided into groups corresponding to a particular set of category variables or indices and (on page 19, line 14) *show[s] a relationship between one or more of the Summary Metrics*. McCartney, in at least [0171] states: "The output generated by applying the model is a file containing a list of all of the CHF patients ordered by an indicator representative of the likelihood that that patient will have an adverse health outcome (i.e., experience that defined by the dependent variable). This list can then be divided into subgroups such as in 5% or 10% increments of patients likely to have the adverse health outcome…" (emphasis added) where the aforementioned 'indicator' corresponds to a *CATVAR*.) It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the resource allocation method of McCartney with Wong's recitation of time-dependent variables because each pertain to the statistical analysis of health care systems and disease management issues and seek to identify ways to improve the efficiency of healthcare delivery systems.

Claim 11:

McCartney, as shown, discloses and/or describes the following limitations:

- *A method for optimizing resource allocation using a plurality of sets of information* (See the preamble to the rejection of claim 1. Note also that *plurality of sets* is redundant and

therefore equivalent to *identifying sets of information* as in claim 1), *the method comprising the steps of:*

- *for each set of information, identifying*
  - *an UOA-ID* (See the rejection of claim 1),
  - *a Type* (Applicant on page 10, line 21 defines *Type*. McCartney, in at least [0026] describes a "classification system" where elements of defined groups must meet certain criteria for inclusion in the relevant group.),
  - *a CCT* (See the rejection of claim 1) *and*
  - *a VAR Value* (See the rejection of claim 1)*;*
- *grouping each UOA-ID into an appropriate Grouper* (McCartney in at least [0030] refers to examples of groups and subgroups of patients. In [0026] McCartney specifically refers to "grouping systems" and thus corresponds to a *Grouper*)*;*
- *identifying a Start Time* (See the rejection of claim 1)*;*

McCartney does not specifically include the following limitations, but Wong, as shown does.

- *identifying a time segment duration* (Wong in at least [0167] refers to "length of stay")*;*
- *forming time segments based on the Start Time* (Wong in at least [0017] describes the acts of : "defining a **time window** for providing a timeframe" where 'defining' is equivalent to *forming*)*;*
- *adjusting and standardizing each VAR Value to create AdjVAR Values* (See the rejection in claim 1 of the limitation component *VAR Value* that specifically mentions "adjusted values")*;*

McCartney, as shown, discloses and/or describes the following limitations:

- *placing each AdjVAR Value into the appropriate time segment* (McCartney in at least [0009] states: "a health care resource profiling system that includes a [ ] database [ ] quantifying a total use of a health care resource [ ] during a predefined **time** period…" where the notion of 'predefined' circumscribes time segments, and *ipso facto* an appropriate time segment.)*;*

- *calculating an eligibility score for each UOA-ID* (See the rejection of claim 1)*; and*
- *generating Output Expressions per CATVAR values which are compared to each other* (See the rejection of claim 1 and Examiner's Official Notice below).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the resource allocation method of McCartney with Wong's recitation of time-dependent variables because each pertain to the statistical analysis of health care systems and disease management issues and seek to identify ways to improve the efficiency of healthcare delivery systems.

Claim 21:

McCartney, as shown, discloses and/or describes the following limitations:

A system for use by a user in optimizing resource allocation comprising (See the rejections of claims 1 and 11)*:*

- *a central processing unit for operating software effective for performing the method of* (See the rejections of claims 3 and 13 below)*:*
- *identifying sets of information wherein each set of information includes*
  - *an UOA-ID,*
  - *a CCT, and*
  - *a VAR Value* (See the rejections of claims 1 and 11)*;*
- *grouping each UOA-ID into an appropriate Type* (See the rejection of claim 1)*;*
- *identifying a Start Time* (See the rejections of claims 1 and 11)*;*
- *forming at least one Cohort Time segment based on the Start Time* (See the rejections of claim 1)*;*
- *placing the VAR Value into the appropriate time segment* (See the rejections of claims 1 and 11)*;*
- *calculating an eligibility score for each UOA-ID for each time segment* (See the rejections of claims 1 and 11)*;*
- *calculating an Eligible Adjusted Variable Value* (See the rejections of claim 1)*;*

- *and generating Output Expressions per CATVAR values which are compared to each other* (See the rejections of claims 1 and 11).

Claim 23:

McCartney, as shown, discloses and/or describes the following limitations:

A system for optimizing resource allocation whereby (See the rejections of claims 1, 11, and 21)

- *Output Expressions are produced comprising a representation, said representation is selected from the group consisting of*
  - *a showing EAV trends of a particular Population, said trends are expressed in Cohort time segments* (Applicant on page 18, line 19 states that *EAV may be, but are not limited to, a quantity count, dollar value, number of products, and number of events, etc.* hence, corresponds to a value of interest expressed in *Cohort time segments*. But a *cohort time segment* is the time segment a particular entity (unit of analysis) satisfies a given criterion (see *e.g.,* page 2 starting on line 10). McCartney, in at least [0004] describes the burden of "track[ing] every resource that is used in respect of every patients by predetermined case types [ ] during the **time** that the patient is in the care of the health care provider." Thus, 'predetermined case types' associated with certain defined time periods corresponds to *cohort time segments* and the notion of tracking resources used is a form of *showing EAV trends*. Also, McCartney, in at least [0003] describes values and costs which correspond to *EAV* and describes trends which correspond to *cohort time trends of a defined population with congestive heart failure when subdivided by a fixed categorical variable* (Application page 4, line 5));

McCartney does not specifically include the following limitations, but Wong, as shown does.

- *a showing NNT trends of a particular Population, said trends are expressed in Cohort time segments per CATVAR values which are compared to each other* (Applicant on page 4, line 4 refers to *cohort time trends of a defined population with congestive heart failure when subdivided by a fixed categorical variable* where *NNT trends*

corresponds to trends of the 'number needed to target' for improving resource allocation. Wong, in at least [0002] describes his invention in terms of "targeted interventions" relative to congestive heart failure patients and further describes "event level information" and prediction models (Wong [abstract]) and "…a time-line diagram…" (figure 6B) pertaining to a series of events, hence a trend associated with targeted interventions which corresponds to *NNT trends of a particular Population*.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the resource allocation method of McCartney with Wong's recitation of time-dependent variables because each pertain to the statistical analysis of health care systems and disease management issues and seek to identify ways to improve the efficiency of healthcare delivery systems.

21. Claims 2, 3, 4–10, 12–20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCartney/Wong.

Claims 2 and 12:

McCartney/Wong disclose the limitations as shown in the rejections above. Furthermore, McCartney as shown, discloses and/or describes the following limitations:

- *The method of claim 1 further comprising the step of transforming the Output Expressions from expressed in Cohort time segments…* (McCartney, in at least [0003], describes various types of *cohort time*: "They will generally require operating room **time,** recovery ward **time**…")

McCartney does not specifically include the following limitations, but Wong, as shown does.

…to being expressed in CCT segments that are subdivided by each CATVAR (Wong, in at least claim 1, states a step which includes: "converting data representing the extracted claims information and the defined events into files containing event level information". This conversion process is equivalent to a transformation of *cohort time segments* to *CCT segments* because CCT segments pertain to the times at which events occur. Moreover, in at least [0048] specifically states "the information is converted into an event level format." Finally, in [0051], Wong states: "Primary data file 2 is an events level file with a record for each event ordered by member and the chronological date of the event, in the present invention, presented in descending order of event date." Emphasis added. Finally, Wong's invention describes a host of category indicators. See *e.g.,* [0072]-[0104].)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the statistical methods of McCartney and Wong because translating time periods associated with conditions to absolute or calendar time facilitates the ability of analysts to make meaningful assessments of resource utilization and discern trends in the data.

Claims 3 and 13:

McCartney/Wong disclose the limitations as shown in the rejections above. McCartney/Wong do not specifically disclose *wherein said method is performed using a system comprising a central processing unit for implementing system software effective for performing the method.* However, the Examiner takes **Official Notice** that it is old and well-known as well as commonplace in the technical and medical arts to utilize computer systems comprising a central processing unit along with system software to perform method or algorithmic steps or procedures in data intensive environments. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to utilize a central processing unit along with system software because their use enables the practical utility by increasing the efficiency and reliability of the resource allocation system.

Claim 4:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 that is used for health care applications.* (See the rejection of claim 1. Note both references teach applications in the health care field.)

Claim 5:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, trademark/trade dress/product design evaluation applications, web page applications, infringement applications, and health care applications* (See the rejection of claim 4 above).

Claim 6:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein an Output Expressions are generated by the method comprising the step of calculating an EAV based on a summary metric for each UOA-ID per Type subdivided by each CATVAR* (See the rejection of claim 1. This claim combines several limitations of claim 1.)

Claim 7:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a DV per Type per time segment* (See Wong, in at least [0150]: "…this is a dichotomous variable…" (emphasis added) See also the rejection of claim 1 above and Examiner's Official Notice below)*;*
  - *calculating an EAV summary metric for all UOA-IDs per Type per time segment* (See the rejections of claim 1 and 6 above)*; and*

- *calculating an EAV Net Value per Type per time segment subdivided by each CATVAR* (See the rejections of claims 1 above and the Examiner's **Official Notice** below. See also Wong, in at least [0150]: "…this is a dichotomous variable referred to as the High Cost indicator such that if the patient, for example, is in the top 10%, High Cost=1, otherwise High Cost=0.")

McCartney/Wong do not specifically describe the limitations regarding a *DV per time segment,* but the 'DV', being a 'dichotomous variable' (see page 24, line 2) is simply a Boolean value that is used to stratify the data. Ergo, the Examiner's takes **Official Notice** that it is well known and commonplace in the statistical analysis arts to employ the use of various types of stratified sampling techniques. These strata are, by definition, mutually exclusive. Applicant employs the term 'DV' to define two mutually exclusive sets of values depending on the context which in Wong also involves a time-based aspect (see Wong in at least [0150]: "Resources counted from time of cost…"). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to use a Boolean technique for stratifying data in conjunction with the health care and disease management methods of McCartney and Wong because many types of data must be either included in an output analysis or excluded from it in order to make the analysis meaningful.

Claim 8:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a RORA* (Wong, in at least [0150] wherein "resource utilization is measured in dollars." 'Resource utilization' is thus equivalent to *return on resource allocation'* (RORA));
  - *determining an Outcome* (See the rejection of claims 1 and 11);

- *calculating a NNT* (See the rejection of claim 23. Wong, in at least [0002] describes his invention in terms of "targeted interventions" relative to congestive heart failure patients and thus requires the determination of the *number needed to target (NNT).*)
- *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 1 relative to the *EAV* calculation and the limitation therein on use of the *CATVAR*)*; and*
- *calculating the maximum available RA per UOA-ID per time segment subdivided by each CATVAR* (See the rejection of the limitation above regarding *RORA*. Note, that McCartney, in at least [0053], refers to "relative resource weightings" in which it is fairly implied that a weighting of 1 corresponds to the maximum weight, hence corresponds to the instant limitation.)

Claim 9:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a RA* (See the rejection of claim 8.)*;*
  - *determining an Outcome* (See the rejection of claim 8.)*;*
  - *calculating a NNT* (See the rejection of claim 8.);
  - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.)*; and*
  - *calculating the RORA per UOA-ID per time segment subdivided by each CATVAR* (See the rejection of claim 8. Note that claim 8 refers to *determining a RORA* whereas here, this calculation is based on an stratified data. However, other limitation in claim 8 effectively address this stratification and this claim is merely a rearrangement of the limitations in claim 8.).

Claim 10:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a RORA* (See the rejection of claim 8.)*;*
  - *determining a RA* (See the rejection of claim 8.)*;*
  - *calculating a NNT* (See the rejection of claim 8.);
  - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.)*; and*
  - *calculating an O per UOA-ID per time segment subdivided by each CATVAR* (See the rejection of claim 8.).

As noted in the rejection of claims 1, 11, 21 and 23 above, it would have been obvious to one with ordinary skill in the art at the time of the invention to combine the methods of McCartney with the invention of Wong, in view of the Examiner's Official Notices, because they pertain to the statistical analysis of health care systems and disease management issues and seek to identify ways to improve the efficiency of healthcare delivery systems.

Claim 14:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 that is used for health care applications* (See the rejection of claim 11. Note both references teach applications in the health care field.)

Claim 15:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, Internet applications, trademark/trade dress/product design evaluation applications, infringement applications, and health care applications* (See the rejection of claim 14).

Claim 16:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

The method of claim 11 wherein an Output Expressions are generated by the method comprising the step of

- *calculating an EAV based on a summary metric for each UOA-ID per Type and Output Expressions per CATVAR values which are compared to each other* (See the rejection of claim 6.).

Claim 17:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a DV per Type per time segment* (See the rejection of claim 7)*;*
  - *calculating an EAV summary metric for all UOAIDs per Type per time segment* (See the rejection of claim 7)*; and*
  - *calculating an EAV Net Value per Type per time segment and Output Expressions per CATVAR values* ***which are compared to each other*** (See the rejection of claims 7 and 11 above.)

Claim 18:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a RORA* (See the rejection of claim 8.)*;*
  - *determining an Outcome* (See the rejection of claim 8.)*;*
  - *calculating a NNT* (See the rejection of claim 8.)
  - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.)*; and*

- *calculating the maximum available RA per UOA-ID per time segment and Output Expressions per CATVAR values which are compared to each other* (See the rejection of claims 8 and 11 above).

Claim 19:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expression is generated by the method comprising the steps of:*
  - *determining a RA* (See the rejection of claim 9)*;*
  - *determining an Outcome* (See the rejection of claim 9)*;*
  - *calculating a NNT* (See the rejection of claim 9);
  - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 9)*; and*
  - *calculating the RORA per UOA-ID per time segment and Output Expressions per CATVAR values which are compared to each other* (See the rejection of claim 9. See also the Examiner's **Official Notice** in the rejection of claim 11 regarding the comparison of data.).

Claim 20:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expressions are generated by the method comprising the steps of:*
  - *determining a RORA* (See the rejection of claim 8)*;*
  - *determining a RA* (See the rejection of claim 8. Note that in claim 8, the modifier *maximum* is, but the pertinent art nevertheless is relevant as the capability to determine an *RA* must be employed to assess the maximum value.)*;*
  - *calculating a NNT* (See the rejection of claim 8);
  - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8)*; and*

- *calculating an O per UOA-ID per time segment and Output Expressions per CATVAR values* (See the rejection of claim 10.)

McCartney and Wong do not specifically disclose the limitation of *which are compared to each other*. However, the Examiner takes **Official Notice** that it is old and well-known in the statistical and medical arts to compare data against a benchmark or standard. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify the methods of McCartney/Wong because making comparisons of data obtained by these inventions enable effective assessments in healthcare delivery systems. See also the Examiner's rejection of claim 2 above.

Claim 22:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The system of claim 21 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, Internet applications, trademark/trade dress/product design evaluation applications, infringement applications, and health care applications* (See the rejection of claim 21. Note both references teach applications in the health care field.).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Wilson, Thomas W. “Evaluating ROI in State Disease Management Programs”, *State Coverage Initiatives,* Vol. IV, No. 5 November 2003.
- Rohrer, J.E. "Duration of heart disease visits by elderly patients: productivity versus quality",*Health Services Management Research*, August 2002, page 141-146.
- http://www.phiinstitute.org/evaluation.html.
- Lynch, John W. et al. "Childhood and adult socioeconomic status as predictors of mortality in Finland", The Lancet, February 26, 1994, page 524.

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to Dr. **Mark A. Fleischer** whose telephone number is **571.270.3925.** The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner’s supervisor, **James A. Reagan** whose telephone number is **571.272.6710** may be contacted.

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